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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,296	04/09/2001	Tsuyoshi Kaito	F-6931	6886

7590

07/15/2003

Jordan and Hamburg
122 East 42nd Street
New York, NY 10168

EXAMINER

YUAN, DAH WEI D

ART UNIT

PAPER NUMBER

1745

4

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS4

Office Action Summary	Application N . 09/829,296	Applicant(s) KAITO ET AL.	
	Examin r Dah-Wei D. Yuan	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1. ☒ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

RECHARGEABLE BATTERY WITH TEMPERATURE CONTROLLED SWITCH

Examiner: Yuan

S.N. 09/829,296

Art Unit: 1745

July 9, 2003

Detailed Action

1. The Applicant's amendment filed on May 16, 2003 was received. The title of the invention was changed. Claims 1,2,4,5,6 were amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action (Paper No. 2).

Claim Objections

3. The claim objections on claims 1,4 are withdrawn, because the claims have been amended.

Claim Rejections - 35 USC § 112

4. The claim rejections under 35 U.S.C. 112, second paragraph, on claims 4-7 are withdrawn, because the claims 4,6 have been amended. The term "ring-shaped" is defined as "a shape which defines an aperture".

Claim Rejections - 35 USC § 102

5. The claim rejections under 35 U.S.C. 102(e) as anticipated by Quinn et al. on claim 4 are withdrawn, because the independent claim 4 has been amended and Applicant's arguments are persuasive.

6. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Quinn et al. (US 6,342,826 B1).

With respect to claim 1, Quinn et al. teach a rechargeable battery comprising a positive electrode, a negative electrode, and a switch (40 in Figure 1). Quinn et al. also disclose a battery case (200) comprising a wrapped multi-layer assembly J that forms the battery electrodes. One electrode of the electrode assembly J is attached to fixed contact (10) by wire (210) while the other electrode is connected to battery case 200. Figure 28 show the fixed contact (10) is the positive battery terminal while the battery case and the lid are the negative terminal. The switch having closed and open positions moves from one position to the other in response to an elevated temperature. Circuit devices, including the switch, are used to interrupt charging or discharging of the battery in the event of thermal runaway. Figure 29 shows the charging circuit (M) as the external power source which is in electrical contact with the battery. In one embodiment, metal terminal plate (96) has fixed contact (10a) attached thereto and isolated therefrom by electrical insulation (12a). Switch blade (40a) of shape memory metal in Figure 22 moves from an open position to a closed position as shown in Figure 23 by changing to its recovered shaped in response to an elevated temperature in the chamber. As shown in Figure 24, a short circuit is established across the positive electrode (10a) and the negative electrode (96) due to changes in temperatures. The switch blade will return to its initial state as the temperature is reduced. With respect to claim 2, the switch blade is in contact with a flexible arm (50) (first conductive plate) in an initial state and is connected fixed contact (a second conductive plate) in response to a change in temperature of the battery. With respect to claim 3, the switch blade is a shape

memory alloy. See Abstract; Column 1, Lines 5-31; Column 5, Lines 1-65; Column 8, Lines 15-28; Column 9, Lines 18-37.

Allowable Subject Matter

7. Claims 4-7 are allowed. The following is a statement of reasons for the indication of allowable subject matter: The invention of independent claims 4 and 5 recites a non-aqueous electrolyte rechargeable battery comprising an electrode of first polarity, an electrode of second polarity, a battery case, and a closure assembly including an external terminal, an internal terminal, a switch element and a ring shaped conductive element. The switch element is responsive to a first temperature change to break connection to the external terminal and effect electrical contact with the ring shaped conductive element to establish a second state of operation, breaking electrical connection between the battery and an external power source and establishing a short circuit to cause the battery to discharge. The closest prior art of record, Quinn et al., does not teach the switch element is responsive to a first temperature change by breaking connection to the external terminal and effect electrical contact with the ring shaped conductive element to establish a second state of operation as stated in the claim.

Response to Arguments

8. Applicant's arguments filed on May 16, 2003 have been fully considered but they are not persuasive.

Art Unit: 1745

Applicant's principle arguments are

The Quinn reference fails to teach a short circuit across the battery's electrodes in response to a temperature change.

In response to Applicant's arguments, please consider the following comments.

In one embodiment, Quinn teaches that the switch element connects the electrode (96) and electrode (10a) in response to a rise in battery temperature. See Figures 22-24. Although Quinn does not explicitly discuss the nature of the switch response, the link of the two electrodes via a conductive switch element is effectively analogous to a "short circuit".

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1745


however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (703) 308-0766. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Dah-Wei D. Yuan
July 9, 2003


CAROL CHANEY
PRIMARY EXAMINER